

**WHAT IS CLAIMED IS:**

1. An image display device comprising:

a black correction part performing a black correction processing of correcting a  
5 black reproducibility of an image data containing a predetermined number of color data,  
to output a black-corrected image data; and

an image display means performing an image display on a predetermined screen  
based on said black-corrected image data,

said black correction part including:

10 a black-display characteristic specifying means performing a predetermined  
operation to specify a black-display characteristic specifying data related to a  
characteristic in displaying black with said image display means;

a black-approximated data calculating means calculating a black-approximated  
data related to at least one of luminance, chromaticity and tristimulus values in displaying  
15 black based on said characteristic in displaying black with said image display means on  
the basis of said black-display characteristic specifying data; and

a black-correction processing executing means executing said black correction  
processing to said image data in units of said predetermined number of color data based  
on said black-approximated data, to output said black-corrected image data.

20 2. The image display device according to claim 1, wherein

said black-correction processing executing means includes a black correction  
means performing a subtraction processing of subtracting a subtraction data based on said  
black-approximated data from said image data in units of said predetermined number of  
25 color data, to output said black-corrected image data.

3. The image display device according to claim 2, wherein  
said subtraction data includes said black-approximated data itself.

5 4. The image display device according to claim 3, wherein  
said black correction means includes:

a subtraction means subtracting said black-approximated data from said image  
data in units of said predetermined number of color data, to obtain data after subtraction;  
and

10 a limiter setting a color data of less than "0" in said predetermined number of  
color data contained in said data after subtraction to "0", to obtain said black-corrected  
image data.

15 5. The image display device according to claim 2, wherein  
said black correction means includes:

a subtraction data calculating means calculating said black-approximated data  
itself as said subtraction data when said image data is larger than a predetermined value;  
and

20 a subtraction means subtracting said subtraction data from said image data in  
units of said predetermined number of color data, to obtain data after subtraction, and  
outputting said data after subtraction as said black-corrected image data.

25 6. The image display device according to claim 5, wherein  
said subtraction data calculating means includes a subtraction data calculating  
means multiplying said black-approximated data with a multiplication factor of less than

"1", when said image data is less than said predetermined value, to obtain said subtraction data.

7. The image display device according to claim 1, wherein

5 said black-correction processing executing means includes:

a look-up table storing a table data; and

a table data writing means, writing data in the form of a table capable of deriving one of said black-corrected image data from said image data as said table data, into said look-up table based on said black-approximated data,

10 said look-up table obtains said black-corrected image data based on said image data by referring to said table data.

8. The image display device according to claim 1, wherein

15 said black-display characteristic specifying data includes data indicating a characteristic of a reflected light of external light on the surface of said predetermined screen of said image display means.

9. The image display device according to claim 8, wherein

20 said black-approximated data calculating means includes a black-approximated data calculating means obtaining a specified value of luminance of a reflected light of external light based on said black-display characteristic specifying data, and calculating said black-approximated data such that a difference between the luminance of the color displayed on said image display means based on said black-approximated data and the luminance in displaying black with said image display means is equal to said specified value.

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10. The image display device according to claim 8, wherein

said black-approximated data calculating means includes a black-approximated data calculating means obtaining specified values of tristimulus values of a reflected light of external light based on said black-display characteristic specifying data, and calculating said black-approximated data such that a difference between the tristimulus values of the color displayed on said image display means based on said black-approximated data and the tristimulus values in displaying black with said image display means is equal to said specified values.

11. The image display device according to claim 8, wherein

said characteristic of a reflected light of external light includes a brightness of the reflected light of external light, and

said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to a chromaticity data indicating a ratio of tristimulus values of a reflected light of external light and a correlation between a color data and tristimulus values in said image display means.

12. The image display device according to claim 11, wherein

said black-display characteristic specifying data further includes data indicating the kind of an external light, and

said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to a ratio of tristimulus values of

a reflected light of an external light of the kind specified by said black-display characteristic specifying data, and said chromaticity data.

13. The image display device according to claim 11, wherein

5       said black-display characteristic specifying data further includes data indicating a color temperature of a reflected light of external light, and

      said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to a ratio of tristimulus values of  
10      the reflected light suited for said color temperature indicated by said black-display characteristic specifying data, and said chromaticity data.

14. The image display device according to claim 8, wherein

      said characteristic of the reflected light of external light includes a luminance of  
15      the reflected light of external light, and

      said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to a ratio of tristimulus values of a reflected light of external light, and a chromaticity data indicating a correlation between  
20      a color data and tristimulus values in said image display means.

15. The image display device according to claim 8, wherein

      said characteristic of the reflected light of external light includes tristimulus values of the reflected light of external light, and

25       said black-approximated data calculating means includes a black-approximated

data calculating means calculating said black-approximated data based on said black-display characteristic specifying data, by referring to a chromaticity data indicating a correlation between a color data and tristimulus values in said image display means.

5           16. The image display device according to claim 1, wherein  
said black-display characteristic specifying data includes data indicating a characteristic in displaying black with said image display means.

10           17. The image display device according to claim 16, wherein  
said black-approximated data calculating means includes a black-approximated data calculating means obtaining a specified value of luminance in displaying black based on said black-display characteristic specifying data, and calculating said black-approximated data such that a difference between the luminance of the color displayed on said image display means based on said black-approximated data and the  
15   luminance in displaying black with said image display means is equal to said specified value.

          18. The image display device according to claim 16, wherein  
said black-approximated data calculating means includes a black-approximated  
20   data calculating means obtaining specified values of tristimulus values in displaying black based on said black-display characteristic specifying data, and calculating said black-approximated data such that a difference between the tristimulus values of the color displayed on said image display means based on said black-approximated data and the tristimulus values in displaying black with said image display means is equal to said  
25   specified values.

19. The image display device according to claim 16, wherein  
said characteristic in displaying black includes a brightness in displaying black,  
and

5        said black-approximated data calculating means includes a black-approximated  
data calculating means calculating said black-approximated data based on said  
black-display characteristic specifying data by referring to tristimulus values in displaying  
black in the absence of external light, a ratio of tristimulus values of a reflected light of  
external light, and a chromaticity data indicating a correlation between a color data and  
10        tristimulus values in said image display means.

20. The image display device according to claim 16, wherein  
said characteristic in displaying black includes a luminance in displaying black,  
and

15        said black-approximated data calculating means includes a black-approximated  
data calculating means calculating said black-approximated data based on said  
black-display characteristic specifying data by referring to tristimulus values in displaying  
black in the absence of external light, a ratio of tristimulus values of a reflected light of  
external light, and a chromaticity data indicating a correlation between a color data and  
20        tristimulus values in said image display means.